

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1-18. (canceled)

19. (currently amended) A storage server for providing a virtualized storage ~~apparatus to~~ subsystem accessible by a plurality of hosts, the storage server comprising:

a first communication interface coupled ~~to~~ with a first network switch to receive a at least one data access request requesting an access to the virtualized storage subsystem from one of the ~~or more hosts that are couple~~ that is coupled with to the first network switch;

a second communication interface coupled ~~to~~ with a second network switch to communicate with a first and a second storage subsystems ~~subsystem~~ including first and second storage areas, respectively, to store data associated with the access requesting host ~~hosts~~, the first and second storage subsystems being provided at remote locations from the storage server; and

a virtual device driver component that is operable to present a virtual storage area of the virtualized storage subsystem to the ~~hosts~~ access requesting host, the virtual storage area being mapped to the ~~first and second storage areas~~ area of the first ~~and second storage subsystems~~ subsystem prior to migration of data from the first storage subsystem to the second storage subsystem,

wherein the storage server is configured to receive, from the access requesting host, a first data access request requesting reading of data stored in the virtualized storage subsystem, the first data access request including a virtual storage address identifying a first location in the virtual storage area of the virtualized storage subsystem, ~~from one of the hosts and~~ to generate a second data access request directed to the first storage subsystem, the second data access request including a storage address identifying a second location in the first storage area that is mapped to the first location in the virtual storage area of the virtualized storage subsystem, to copy the data received from the first storage subsystem to a third location in the second

storage area of the second storage subsystem, and to send the received data to the access requesting host, and

wherein the storage server is configured to change mapping of the first location in the virtual storage area of the virtualized storage subsystem from the second location in the first storage area to the a-third location in the second storage area so that the access requesting host accesses the first storage subsystem and the second storage subsystem through the storage server in connection with a data migration operation.

20. (canceled)

21. (currently amended) The storage server of claim ~~19~~ 20-wherein if the storage server receives, from the access requesting host, a third data access request including the storage virtual-address identifying the first location in of the virtual storage area of the virtualized storage subsystem from one of the hosts after the copying of the data migration, the storage server is configured to generate a fourth data access request directed to the second storage subsystem, the fourth data access request including a storage address identifying the third location in the second storage area.

22. (previously presented) The storage server of claim 19, wherein the first and second network switches are the same.

23. (currently amended) The storage server of claim 19, wherein the storage server is configured to initiate the data-migration of first data that has not been copied from stored in the first the storage area of the first storage subsystem to the second the storage area of the second storage subsystem, while stopping data access operation from the hosts to the virtualized storage subsystem.

24. (currently amended) The storage server of claim ~~19~~ 23, wherein when the storage server is configured to receive a request from one of the hosts to access receives, from the access requesting host, a data access request requesting an access to a portion of the first-data stored in the first storage area while the first-data stored in the first storage area are being is

migrated to the second storage area, the storage server accesses a data migration unit to determine whether the data access request should be directed either to the first storage subsystem or the second storage subsystem, with the data migration unit maintaining a record on portions of the data stored in the first storage area that remain in the first storage area while the data stored in the first storage area is migrated to the second storage area.

25. (canceled)

26. (currently amended) The storage server of claim 24-25, wherein the data migration unit is provided in one of the first and second storage subsystems or the storage server.

27. (currently amended) A storage system coupled ~~to~~ with a network switch, comprising:

a backend ~~storage-server~~ coupled ~~to~~ with a plurality of hosts via a network;

a first storage subsystem including a first storage controller and a plurality of first storage devices, the first storage controller configured to control access to the first storage devices, the first storage devices defining a first storage area, the first storage subsystem being coupled ~~to~~ with the backend ~~storage-server~~ via the network; and

a second storage subsystem including a second storage controller and a plurality of second storage devices, the second controller ~~being~~ configured to control access to the second storage devices, the second storage devices defining a second storage area, the second storage subsystem being coupled ~~to~~ with the backend ~~storage-server~~ via the network,

wherein the backend ~~storage-server~~, the first storage subsystem, and the second storage subsystems are all remotely located from each other,

wherein the backend ~~storage-server~~ presents a virtualized storage area ~~subsystem~~ to the hosts, the virtualized storage subsystem including a virtual storage area being mapped to using at least the first storage area of the first storage subsystem prior to migration of the data from the first storage subsystem to the second storage subsystem,

wherein the backend ~~storage-server~~ is configured to receive, from the host, a first data access request requesting reading of data stored in the virtualized storage subsystem, the

first data access request including a virtual-storage address identifying a first location in the virtualized storage area of the virtualized storage subsystem, from one of the hosts and to generate a second data access request directed to the first storage subsystem, the second data access request including a storage address identifying a second location in the first storage area that is mapped to the first location in the virtualized storage area of the virtual storage subsystem, to copy the data received from the first storage subsystem to a third location in the second storage area of the second storage subsystem, and to send the received data to the host, and

wherein the backend storage-server is configured to change mapping of the first location in the virtualized storage area of the virtualized storage subsystem from the second location in the first storage area to a third location in the second storage area so that the host accesses the first storage subsystem and the second storage subsystem through the backend server in connection with a data migration operation.

28. (currently amended) A method for operating a storage system with a virtualized storage ~~area~~subsystem, the method comprising:

receiving a first data access request from a first host at a backend server, the first data access request requesting reading of data stored in a virtualized storage subsystem, the backend server being coupled to with a plurality of hosts and first and second storage subsystems via a network, the backend server presenting a the virtualized storage area-subsystem to the plurality of the hosts, the first data access request including a virtual-storage address identifying a first location in the a virtual virtualized-storage area of the virtualized storage subsystem, the first and second storage subsystems being located remotely from the backend server;

generating a second data access request at the backend server, the second data access request including a storage address identifying a second location in a first storage area that is mapped to the first location in the virtualized-virtual storage area, the first storage area being defined by the first storage subsystem;

transmitting the second data access request to the first storage subsystem to copy data corresponding to data requested by satisfy the first data access request received from the

first host from the second location to a third location in the second storage area of the second storage subsystem;

sending the copied data to the host; and

changing mapping of the first location in the ~~virtualized-virtual~~ storage area of the virtualized storage subsystem from the second location in the first storage area to ~~a~~ the third location in the ~~a~~ second storage area in connection with copying a data migration operation ~~the data from the second location to the third location~~, the second storage area being defined by the second storage subsystem, ~~the data migration operation involving migrating data stored in the first storage area to the second storage area.~~

29. (currently amended) The method of claim 28, further comprising:
maintaining a table holding a flag for indicating a state of copying data migration ~~state~~ on each data block associated with the ~~virtualized-virtual~~ storage area.

30. (previously presented) The method of claim 28, wherein each data block corresponds to a logical block address.

31. (currently amended) The method of claim 28, wherein the table is maintained by one ~~o~~ f the first and second storage subsystems.

32. (currently amended) The method of claim 31, further comprising:
receiving a third data access request at the backend server including the storage virtual address identifying the first location of the virtual storage area of the virtualized storage subsystem from a second host after the ~~data migration~~ copying of the data; and
generating, by the backend server, a fourth data access request directed to the second storage subsystem, the fourth data request including a storage address identifying the third location in the second storage area.

33. (previously presented) The method of claim 32, wherein the first and second hosts are different hosts.

34-38. (canceled)

39. (currently amended) A storage server for providing a virtualized storage subsystem accessible by ~~apparatus~~ to a plurality of hosts, the storage server comprising:

a first communication interface coupled ~~to~~ with a network switch to receive a data access request requesting an access to the virtualized storage subsystem from one of ~~more the~~ hosts that ~~are~~ is couple-coupled to ~~with~~ the network switch;

a second communication interface coupled ~~to~~ with the network switch to communicate with first and second storage subsystems including first and second storage areas, respectively, to store data associated with the access requesting host~~hosts~~; and

a virtual device driver component that is operable to present a virtual storage ~~are~~ area of the virtual storage subsystem to the access requesting host~~hosts~~, the virtual storage area being mapped to the first ~~and second storage areas~~ area of the first and second storage subsystem~~ssubsystem~~ prior to migration of data from the first storage subsystem to the second storage subsystem,

wherein the storage server is configured to receive, from the access requesting host, a first data access request requesting reading of data stored in the virtualized storage subsystem, the first data access request including a virtual-storage address identifying a first location in the virtual storage area of the virtualized storage subsystem ~~from one of the hosts via the first communication interface~~, and to generate a second data access request directed to the first storage subsystem, the second data access request including a storage address identifying a second location in the first storage area that is mapped to the first location in the virtual storage area of the virtualized storage subsystem, to copy the data received from the first storage subsystem to a third location in the second storage area of the second storage subsystem, and to send the received data to the access requesting host,

wherein the storage server is configured to change mapping of the first location in the virtual storage area of the virtualized storage subsystem to ~~a~~ the third location in the second storage area so that the access requesting host accesses the first storage subsystem and the

second storage subsystem through the storage server in connection with a data migration operation,

~~wherein the data migration involves migration of data stored in the second location to the third location,~~

wherein if the storage server receives, from the access requesting host, a third data access request including the virtual storage address identifying the first location in of the virtual storage area of the virtualized storage subsystem ~~from one of the hosts~~ via the first interface after copying of the data migration, the storage server is configured to generate a fourth data access request directed to the second storage subsystem and to send the fourth data access request to the second storage subsystem via the second interface, the fourth data access request including a storage address identifying the third location in the second storage area.

40. (currently amended) The storage server of claim 39-34, wherein the server is configured to initiate ~~the data migration of first data that has not been copied from stored in the first the storage area-area~~ of the first storage subsystem to ~~the second the storage area-area~~ of the second storage subsystem via the second interface, while stopping data access operation from the hosts to the virtualized storage subsystem.